

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 January 2005 (06.01.2005)

PCT

(10) International Publication Number  
**WO 2005/000235 A2**

- (51) International Patent Classification<sup>7</sup>: **A61K**
- (21) International Application Number:  
PCT/US2004/018962
- (22) International Filing Date: 14 June 2004 (14.06.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/478,205 13 June 2003 (13.06.2003) US  
60/478,210 13 June 2003 (13.06.2003) US
- (71) Applicant (for all designated States except US): **THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA** [US/US]; 3160 Chestnut Street, Suite 200, Philadelphia, PA 19104-6283 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **WEINER, David, B.** [US/US]; 717 Beacon Lane, Merion, PA 19066 (US). **KUTZLER, Michele** [US/US]; 188 Penn Avenue, Souderton, PA 18964 (US). **CHOO, Andrew, K.** [US/US]; 796 Dunleazy Place, Lansdale, PA 19446 (US). **YANG, Joo-Sung** [KR/US]; Room 62207, Dept. Genetic Engineering, Sungkyunkwan University, 300 Chunchun-Dong, Jangnan-Ku, Suwon-City, Kyunggi-Do 440-746 (KR). **BOYER, Jean, D.** [US/US]; 215 Woodlane Avenue, Haddonfield, NJ 08033 (US).
- (74) Agent: **DELUCA, Mark**; Cozen O'Connor, 1900 Market Street, Philadelphia, PA 19103 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NUCLEIC ACID SEQUENCES ENCODING AND COMPOSITIONS COMPRISING IgE SIGNAL PEPTIDE AND/OR IL-15 AND METHODS FOR USING THE SAME

(57) Abstract: Fusion proteins and nucleic acid molecules encoding fusion proteins are disclosed. Fusion proteins comprising non-IL-15 signal peptide linked to IL-15 protein sequences and fusion proteins comprising an IgE signal peptide linked to non-IgE protein sequences are disclosed. Vectors comprising such nucleic acid molecules; and to host cells comprising such vectors are disclosed as well as recombinant vaccines and live attenuated pathogens encoding fusion proteins, and methods of using the same, are disclosed. The immunomodulatory effect following delivery of IL-15 and CD40L, with or without immunogens, is disclosed as are various nucleic acid molecules and compositions thereof used for delivering such proteins and methods of using such compositions.

WO 2005/000235 A2